

## **Examining Attitudes towards Entrepreneurship Education: A Comparative Analysis among Experts**

Katharina Fellnhofer  
University of Bayreuth  
Chair of Strategic Management and Organization  
Universitätsstraße 30  
95447 Bayreuth, Germany  
E-Mail: katharina.fellnhofer@aon.at

Sascha Kraus  
University of Liechtenstein  
Institute for Entrepreneurship  
Fürst-Franz-Josef-Strasse,  
9490 Vaduz, Liechtenstein  
E-Mail: sascha.kraus@unisg.ch

**Abstract:** This paper aims to examine the attitudes towards entrepreneurship education (EE) of entrepreneurs, investors, policy-makers, service providers and educators within Europe. The research seeks to emphasize differences between these experts that influence future impact in EE by improving the view of entrepreneurship as an attractive career path. This research builds on secondary data of the Global Entrepreneurship Monitor (GEM), which is an ongoing study of entrepreneurial dynamics assessing annually the entrepreneurial activity, aspirations and attitudes of individuals. In particular, the study compares how individuals with different entrepreneurial expertise are aware of entrepreneurial education influences learners' perceptions of, entrepreneurship as an attractive career option. A Kruskal-Wallis test and independent t-tests were conducted to evaluate differences among the attitudes of experts. The study suggests that EE can be influenced by moderators' background and profile as well as gender. Different experts show equal perceptions in most cases. However, more attention must be drawn to EE at the basic level of schooling. In addition, our findings call for more research to be done on teaching methods by different moderators to increase skills to react appropriately to entrepreneurial opportunities. The paper provides evidence that differences between gender settings need to be considered in the design and delivery of EE if they are to have the desired impact on entrepreneurial intention. Our analyses highlight the fact that significant differences between genders need to be considered in future EE research. Overall, these research findings are of interest to academia, business, and policy makers.

**Key words:** entrepreneurship; entrepreneurship education; experts' attitudes; gender; comparative analysis.

**Bibliographical notes:**

Katharina Fellnhofer is a postdoctoral researcher at the Chair of Strategic Management and Organization at the University of Bayreuth, Germany. She holds a Ph.D. in Entrepreneurship from the University of Innsbruck, Austria.

Sascha Kraus is Professor for Entrepreneurship at the University of Liechtenstein and Visiting Professor for International Small Business Management at the University of St. Gallen, Switzerland. In addition, he is Adjunct Professor in Lappeenranta University of Technology, Finland.

## **1 Introduction**

All over the world there is an increasing interest in entrepreneurship education (EE). EE as an emerging interdisciplinary subject has made good strides but is still struggling to bring its theory and literature up to the standards of others in the management sciences (Gorman and Hanlon, 1997a; Katz, 2003a; Kuratko, 2003; 2005; Pittaway and Cope, 2007; Albornoz, 2008; Rasmussen, 2011; Lorz et al., 2013). However, EE is supported by governments fuelled by a recognition that it plays an important role in economic growth and employment (Schumpeter, 1934; Shane and Venkataraman, 2000), and by assertions that it can play a vital role in developing more able entrepreneurs (e.g., Gorman and Hanlon, 1997a; Peterman and Kennedy, 2003; Katz, 2008; Pittaway and Cope, 2007). Policy-makers generally consider new venture formation to be instrumental for economic growth and technological progress. According to the European Commission (EC), entrepreneurship and EE are considered to be two important and determinative issues in the advancement of societies. These two concepts are interconnected in promoting innovation, creativity, employment and economic growth. Therefore, EE must be encouraged to change individuals' attitude towards risk-taking and towards a career as entrepreneur (EC, 2013a). Parallel to the increasing importance of entrepreneurship, EE is becoming more and more essential across different education systems (Kozlinska, 2011; Shane and Venkataraman, 2000).

Although research in entrepreneurship is growing and gaining legitimacy in scientific communities, only few scholars have focused on

the subfield of EE (Peterman and Kennedy, 2003; Fayolle et al., 2006; Souitaris et al., 2007). However, the academic literature is still less unanimous. Several previous studies have found a positive impact of EE courses on the perceived attractiveness and feasibility of new venture initiation (Peterman and Kennedy, 2003; Sternberg and Wennekers, 2005; Van Stel et al., 2005; Fayolle et al., 2006; Acs and Szerb, 2007; Souitaris et al., 2007). While many scholars concede that particular forms of EE are associated with sizable positive effects, other studies find evidence that the effects are negative (Oosterbeek et al., 2010). In awareness of these findings, some policy-makers declare the sensitization and advancement of potential founders, including appropriate EE, a primary goal of innovation policies (EC, 2013a).

The overall aim of this study is to examine the attitudes of different experts towards EE to highlight important future research areas. In respect to this plan, this action seeks to make the following contributions. First, a conceptual perspective will provide the basis for different entrepreneurial attitudes between experts. Next, this study will uncover significant differences in experts' attitudes relevant to appropriate levels of EE to increase the attractiveness of entrepreneurship as a career path for both men and women. Thus, the study contributes to the preparation of appropriate teaching material by different moderators, who influence the impact of EE. The research question addressed in this paper can be summarized as follows: *'Are relevant future research areas the result of a lack of equilibrium in different experts' attitudes of EE?'*

The paper is arranged as follows: the relevant literature concerning the elements and hypothesized equilibrium in the EE research is reviewed first. The methodological design of the study is explained subsequently, followed by the results of the analysis. Finally, the findings are discussed and conclusions and implications drawn.

## **2 Theoretical foundations**

### *2.1 Literature Review of EE*

Research about the effects of EE is still in its infancy (Lorz et al., 2013; Rideout and Gray, 2013; Bae et al., 2014). Most research analyzing EE focuses on entrepreneurial attitudes, intentions, and venture activities. Many studies in the EE research stream have reported inconsistent and ambiguous findings based on questioning the research methods and the generalizability of EE impact studies (Fayolle et al., 2006; Pittaway and Cope, 2007; Lorz et al., 2013; Rideout and Gray, 2013). However, many

scholars share the opinion that it has developed into a widespread phenomenon with a remarkable progress (Katz, 2003b; Johnson et al., 2006; Kuratko, 2005; Bae et al., 2014). While several studies support the fact that EE has had an impact on people's entrepreneurial motivation, the findings also highlight a lack of consensus on what EE actually is when implemented in practice, which is influenced by the educators (Gorman and Hanlon, 1997b; Pittaway and Cope, 2007; Albornoz, 2008; Kozlinska, 2011; Albornoz Pardo, 2013; Lourenço et al., 2013). Effectiveness of the interdisciplinary EE appears to be related to the moderators' profiles, skills, background and knowledge of different methods for teaching entrepreneurship (Zahra, 2012). Moreover, there is a great need to motivate and reward different experts for getting involved in entrepreneurial teaching (EC, 2013b). Despite a wide range of teaching techniques to supplement lectures, there seems to be a gap between the methods actually used and those that are viewed as the most effective and appropriate. Prior studies suggest that it is better to concentrate on the promotion of entrepreneurial spirit than on teaching skills (Lautenschläger and Haase, 2011). Even though business practitioners are involved in the teaching, there are few examples of entrepreneurial practitioners engaged in the full curricula experience (Gendron, 2004). Most frequently, they come to give short presentations as guest lecturers or as judges in competitions. There is a need for more interactive learning approaches, where teachers become more moderators than lecturers (Neck and Greene, 2011; Miller et al., 2012). EE has a key role in developing entrepreneurial culture in the society in that it imparts the knowledge necessary for the start, survival and growth of a business. The answer to a successful EE is to find an appropriate way to manage teachable skills and identify the best match between moderators, teaching techniques and learners' needs (Hao et al., 2005; Heinonen and Poikkijoki, 2006).

## *2.2 Different Experts' views on EE*

The study contrasts and compares the perspective of different experts towards EE. Little research has been done on the impact of entrepreneurial education and entrepreneurial role models on entrepreneurship as a career choice (Muofhe and du Toit, 2011). According to Fayolle and Gailly (2008), little knowledge exists regarding the potential causal link between some educational variables (past entrepreneurial exposure, course contents, pedagogical methods, teachers' professional profiles, available resources, etc.) and the impact of EE programs on intention and behavior (attitudes, values, skills, etc.). How does the educators profile influence entrepreneurial intentions? However, in the context of human capital theory, there is indeed support for the value of EE. Prior studies highlight

a positive relationship between EE and both entrepreneurship-related human capital assets and entrepreneurship outcomes (Martin et al., 2013). This research builds a basis for future studies to examine differences in potential course instructors, such as their skills and backgrounds (e.g. entrepreneur, investor, service provider, teacher, etc.). Consequently, in this analysis, the arguments that we have developed are based on EE engendering greater awareness for experts who are able to engage in future EE, namely entrepreneur (1), investor (2), policy-maker (3), service provider (4), and educator, teacher, or researcher in entrepreneurship (5). These five expert groups analyzed, also with respect to gender, make this study a point of origin for a better understanding and comparative assessment of EE worldwide.

### *2.3 Attitudes towards EE*

We assume that experts vary in their attitudes towards the current range of settings in EE throughout all education systems, from the primary and secondary levels to colleges and universities, business and management schools, vocational, professional, and continuing education: EE consists of any pedagogical process or program of education for entrepreneurial attitudes and skills (Fayolle et al., 2006). Some researchers have proposed a positive link between EE and entrepreneurial attitudes, intention or action, but the evidence is still not strong (e.g. Krueger, 2007; 2011; Souitaris et al., 2007; Oosterbeek et al., 2010; von Graevenitz et al., 2010; Sánchez, 2013). Nonetheless, whether and how a generalization of those results to a range of settings may occur remains a pending question (Zhao, Siebert, & Hills, 2005). A lack in equilibrium of different experts' attitudes concerning teaching methods and needed know-how will open research areas. In light of the current range of settings in EE, we infer the following hypothesis:

***Hypothesis 1.*** *The attitudes towards the current range of settings in EE do not differ between different experts.*

The level of know-how and experience needed to exploit entrepreneurial opportunities using given resources is perceived differently by experts: The degree of change in perceptions is related to prior experience (Peterman and Kennedy, 2003). Based on a previous study by Bae et al. (2014), which found a significant but small correlation between EE and entrepreneurial intentions, we assume that different experts are equally aware of lacks in competences and the need for specific EE programs. In response to this there have been multiple calls for educators at all levels to

recognize the challenges and opportunities and to ensure that individuals develop entrepreneurial knowledge, skills, and abilities (Boyles, 2012). A lack in equilibrium of different experts' attitudes concerning necessary know-how and experience will open research areas. In light of this proposition, we hypothesize the following:

**Hypothesis 2.** *Different experts show an equilibrium in perceiving the level of know-how and experience necessary to recognize entrepreneurial opportunities with given resources.*

Experts differ in their views of entrepreneurship as an attractive career path for men or women: EE may have several distinct effects on male and female individuals. However, these effects emanating from EE are still poorly understood. Early studies already discussed EE as a vehicle for career awareness (Parker, 1981). Several previous studies found a positive impact of EE programs on the perceived attractiveness and feasibility of new venture initiation (Peterman and Kennedy, 2003; Fayolle et al., 2006; Souitaris et al., 2007). Other studies find evidence that the effects are negative (Oosterbeek et al., 2010). There may be methodological reasons why the literature has not yet generated consistent findings. Further studies have found support for the causal link between awareness education and individuals' entrepreneurial attitudes; perceived control over entrepreneurial tasks is not a relevant predictor of venture intentions in an awareness setting. While EE is likely to influence knowledge and skills, it also influences the attitudes and perceptions that may affect entrepreneurial intentions, and thereby actions (Fretschner and Weber, 2013).

Several scholars found evidence that men have higher entrepreneurial intentions than women (Scherer et al., 1989; Chen et al., 1998; Kourilsky and Walstad, 1998; Hao et al., 2005). However, the impacts of EE on entrepreneurial intentions may not be as effective for men as for women. According to social role theory, gender-based expectation leads both men and women to pursue gender-stereotype occupations (Vinkenburg et al., 2011). Therefore, EE will be more helpful for women to strengthen their skills and increase their entrepreneurial intentions relative to men. Wilson et al. (2007) refer to EE as an "equalizer." There are no universally accepted gender differences for the EE intentions relationship (Chowdhury, 2005). Therefore, gender differences in perception will open research areas. Thus, we offer the following hypothesis:

**Hypothesis 3.** *Different experts see entrepreneurship as attractive career path for both male and female.*

### **3 Methodology**

Before testing the aforementioned hypotheses, this section focuses on the data description and operationalization process.

#### *3.1 Data description*

The following empirical analyses are based on open data from the ongoing Global Entrepreneurship Monitor (GEM) study of entrepreneurial dynamics assessing annually the entrepreneurial activity, aspirations and attitudes of individuals. The GEM entrepreneurship data sets measure the behavior of individuals with respect to starting and managing a business. This approach provides a detailed picture of entrepreneurial activity. The GEM generates relevant information on entrepreneurship, providing harmonized measures of the attitudes, activities and characteristics of individuals who participate in various phases of entrepreneurship. The survey in 2013 included 2008 experts with a male quota of 26% and female quota of 73% (1% are n.a.). In more detail, 29% entrepreneurs, 10% investors, 14% policy-makers, 24% service providers, and 18% educators, teachers, researchers in entrepreneurship (5% n.a.) were surveyed on entrepreneurship across 70 economies, collectively representing all regions of the world and a broad range of economic development levels. The samples in the GEM 2013 study represent an estimated 75% of the world's population and 90% of the world's total GDP. With an increasing number of economies participating, the GEM reflects the World Economic Forum's Global Competitiveness Report classification into three levels: factor-driven, efficiency-driven, and innovation-driven. The GEM questionnaire obtains the views of experts on a wide range of items, each of which was designed to capture different dimensions (Amoros and Bosma, 2013).

#### *3.2 Operationalization*

To test our three hypotheses, we used the following data from the GEM 2013 study for our comparison.

Based on the first hypothesis, i.e. *that the attitudes towards the current range of settings in EE do not differ between different experts*, we expect that different experts reply in a similar manner asked whether (NES10\_D01) teaching in primary and secondary education encourages creativity, self-sufficiency, and personal initiative; whether (NES10\_D02) teaching in primary and secondary education provides adequate instruction

in market economic principles; whether (NES10\_D03) teaching in primary and secondary education adequately deals with entrepreneurship and new firm creation; whether (NES10\_D04) colleges and universities provide good and adequate preparation for starting up and developing new firms; whether (NES10\_D05) the level of business and management education provides good and adequate preparation for starting up and developing new firms; and whether (NES10\_D06) the vocational, professional, and continuing-education systems provide good and adequate preparation for starting up and developing new firms.

In light of the second hypothesis, i.e. *that different experts show an equilibrium in perceiving the level of know-how and experience necessary to recognize entrepreneurial opportunities with given resources*, we examine whether experts are equally aware that (NES10\_L01) people know how to start and manage a high-growth business; that (NES10\_L02) people know how to start and manage a small business; that (NES10\_L03) people have experience in starting a new business; that (NES10\_L04) people can react quickly to good opportunities for a new business; and that (NES10\_L05) people have the ability to organize the resources required for a new business.

To provide findings regarding the third hypothesis, i.e. *that different experts see entrepreneurship as an attractive career path for both men and women*, our study examines the experts' perception concerning whether (NES10\_M01) the creation of new ventures is an appropriate way to become rich; whether (NES10\_M02) people consider becoming an entrepreneur a desirable career choice; whether (NES10\_M03) successful entrepreneurs have a high level of status and respect; (NES10\_M04) stories in the public media about successful entrepreneurs; and whether (NES10\_M05) people think of entrepreneurs as competent, resourceful individuals. In addition, further analysis will be provided concerning experts' opinion, with respect to gender issues, that (NES10\_P01) there are sufficient social services available so that women can continue to work even after they start a family; (NES10\_P02) starting a new business is a socially acceptable career option for women; (NES10\_P03) women are encouraged to become self-employed or start a new business; (NES10\_P04) men and women are equally exposed to good opportunities for starting a new business; and (NES10\_P05) men and women have the same level of knowledge and skills for starting a new business.

All of the above questions were measured on a five-point Likert scale to generate ordinal variables. This also means that all variables reflect the respondents' opinions and perceptions, rather than indisputable facts. Although missing values were few (5%), they were estimated by means of the expectation maximization (EM) algorithm in SPSS in order not to lose any cases in the final analysis.



## **4 Results**

The Kruskal-Wallis H test is a rank-based non-parametric test that can be used to determine whether there are statistically significant differences among several (expert) groups of an independent variable (expert) on an ordinal dependent variable (rank in perception on EE issues). It is considered the non-parametric alternative to the one-way ANOVA, and an extension of the Mann-Whitney U test to allow the comparison of more than two independent groups. Since it is a non-parametric method, the Kruskal-Wallis H test does not assume a normal distribution of the residuals (Siegel and Castellan, 1988). We use the Kruskal-Wallis H test to understand whether attitudes towards EE questions (dependent variables), measured on a 5-point scale ("completely false"; "somewhat false"; "neither true nor false"; "somewhat true"; "completely true") differ based on expert specialization as an independent variable (group 1 "entrepreneur", group 2 "investor", group 3 "policy-maker", group 4 "service provider", and group 5 "educator, teacher, researcher in entrepreneurship").

All assumptions for the Kruskal-Wallis H test are given. All the groups are normally distributed. All the populations sampled have approximately equal variance, which is checked by generating side-by-side boxplots. The samples of the groups are independent of one another, and subjects within the groups were randomly selected (Ceyhan and Goad, 2009).

When rejecting a hypothesis of the Kruskal-Wallis H test, then at least one of the samples stochastically dominates at least one other sample. The test does not identify where this stochastic dominance occurs or for how many pairs of groups stochastic dominance obtains. Results for each of the three hypotheses are presented in Tables 1–4.

Table 1 provides the test statistics for Hypothesis 1, i.e. that the attitudes towards the current range of settings in EE do differ between different experts. The five expert groups show significant difference when the EE teaching in primary and secondary school systems is rated. Regarding the independent t-test statistics between two groups in detail, it is interesting that the views of entrepreneurs and policy-makers as well as policy-makers and business / support / service providers are significantly different. This finding supports our assumption that while experts hold similar opinions when rating the current EE situation in higher education, more attention must be drawn to EE at basic level of schooling.

**Table 1:** Test Statistics for Hypothesis 1

	In my country, teaching in primary and secondary education encourages creativity, self-sufficiency, and personal initiative	In my country, teaching in primary and secondary education provides adequate instruction in market economic principles	In my country, teaching in primary and secondary education provides adequate attention to entrepreneurship and new firm creation	In my country, colleges and universities provide good and adequate preparation for starting up and developing new firms	In my country, the level of business and management education provides good and adequate preparation for starting up and developing new firms	In my country, the vocational, professional, and continuing education systems provide good and adequate preparation for starting up and developing new firms
Chi-square	13.276	19.608	12.873	7.428	2.442	7.118
df	4	4	4	4	4	4
Asymp. sig.	.010**	.001**	.012*	.115	.655	.130

Kruskal-Wallis Test with Grouping Variable: Expert specialization (1=entrepreneur, 2=investor, 3=policy-maker, 4=service provider, 5 = educator, teacher, researcher in entrepreneurship)

\*\* Finding is significant at the 0.01 level (2-tailed). \* Finding is significant at the 0.05 level (2-tailed).

Table 2 provides the test statistics for Hypothesis 2, i.e. that different experts show an equilibrium in the perception of the level of know-how and experience necessary to recognize entrepreneurial opportunities with given resources. The five expert groups show only one significant difference when rating people who are able to react quickly to good opportunities for a new business. Based on prior studies by Miller et al. (2012), this finding also calls for more research on teaching methods to increase skills to react appropriately to entrepreneurial opportunities. These findings support prior studies showing a need for more interactive learning approaches, where teachers become more moderators than lecturers (Neck and Greene, 2011; Miller et al., 2012).

**Table 2:** Test Statistics for Hypothesis 2

	In my country, many people know how to start and manage a high-growth business	In my country, many people know how to start and manage a small business	In my country, many people have experience in starting a new business	In my country, many people can react quickly to good opportunities for a new business	In my country, many people have the ability to organize the resources required for a new business
Chi-square	8.329	9.402	7.403	13.376	6.059
df	4	4	4	4	4
Asymp. sig.	.080	.052	.116	.010**	.195

Kruskal-Wallis Test with Grouping Variable: Expert specialization (1=entrepreneur, 2=investor, 3=policy-maker, 4=service provider, 5 = educator, teacher, researcher in entrepreneurship)

\*\* Finding is significant at the 0.01 level (2-tailed). \* Finding is significant at the 0.05 level (2-tailed).

Tables 3 and 4 provide the test statistics for Hypothesis 3 to examine whether different experts see entrepreneurship as an attractive career path for both men and women. The five expert groups manifest only one

*Examining Attitudes towards Entrepreneurship Education*

significant difference concerning whether people think of entrepreneurs as competent, resourceful individuals, shown in Table 3.

**Table 3:** Test Statistics for Hypothesis 3

	In my country, the creation of new ventures is considered an appropriate way to become rich	In my country, most people consider becoming an entrepreneur a desirable career choice	In my country, successful entrepreneurs have a high level of status and respect	In my country, you will often see stories in the public media about successful entrepreneurs	In my country, most people think of entrepreneurs as competent, resourceful individuals
Chi-square	4.509	2.563	3.034	4.565	10.603
df	4	4	4	4	4
Asymp. sig.	.341	.633	.552	.335	.031*

Kruskal-Wallis Test with Grouping Variable: Expert specialization (1=entrepreneur, 2=investor, 3=policy-maker, 4=service provider, 5 = educator, teacher, researcher in entrepreneurship)

\*\* Finding is significant at the 0.01 level (2-tailed). \* Finding is significant at the 0.05 level (2-tailed).

Table 4 highlights the significant difference among the expert groups regarding whether men and women have the same level of knowledge and skills to start a new business. Independent t-tests between the female and male groups show significant differences when asking whether the creation of new ventures is considered an appropriate way to become rich and whether men and women are equally exposed to good opportunities to start a new business. While there is no significant difference between the independent samples of women and men in the t-test for equality of means for testing Hypotheses 1 and 2, a significant difference is found in the independent t-test between the independent samples of women and men for the two questions in Hypothesis 3. Female and male experts do not share the same opinions concerning whether the creation of new ventures is considered an appropriate way to become rich and whether men and women are equally exposed to good opportunities to start a new business. Consequently, these findings call for more research on differences in EE with a focus on gender issues.

**Table 4:** Test Statistics for Hypothesis 3

	In my country, there are sufficient social services available so that women can continue to work even after they start a family	In my country, starting a new business is a socially acceptable career option for women	In my country, women are encouraged to become self-employed or start a new business	In my country, men and women are equally exposed to good opportunities to start a new business	In my country, men and women have the same level of knowledge and skills to start a new business
Chi-square	2.889	2.737	10.003	8.460	17.061
df	4	4	4	4	4
Asymp. sig.	.577	.603	.040*	.076	.002**

Kruskal-Wallis Test with Grouping Variable: Expert specialization (1=entrepreneur, 2=investor, 3=policy-maker, 4=service provider, 5 = educator, teacher, researcher in entrepreneurship)

\*\* Finding is significant at the 0.01 level (2-tailed). \* Finding is significant at the 0.05 level (2-tailed).

## 5 Discussion

### 5.1. Contributions and Implications

The overall objective of this study was to bring different experts of EE to a comparable understanding of a complex issue and to add strength to what is already known through previous research. Although research on EE is growing rapidly around the world, extant reviews have been equivocal about its impact (e.g. Peterman and Kennedy, 2003; Fayolle et al., 2006; Souitaris et al., 2007; Hansen et al., 2009). This is due in part to the fact that, although most studies report positive relationships, a number of important studies have shown negative results of EE (e.g. Oosterbeek et al., 2010). Thus, it is not clear why the impact might be different. Reasons could be different teaching methods by different moderators with different profiles, skills, experience and background. At the same time recent EE literature has highlighted the need to better understand the dynamic nature of human capital development (Unger et al., 2011).

Our study addresses current gaps in the EE literature in an important way. We have provided a quantitative assessment of different experts' perceptions on EE, who appear to be different moderators in EE courses with different goals, showing that their views are not in equilibrium. This calls for further research. Overall, our results provided partial support for all three hypotheses associated with this study. Evidence in support of Hypothesis 1 demonstrated that EE is associated equally across all expert groups with an exception at the basic school level (see Table 1). Results from testing Hypothesis 1 highlight that more attention must be drawn to EE at the basic level of schooling. Evidence in support of Hypothesis 2 showed that experts do perceive significantly differently that people are able to react appropriately to entrepreneurial opportunities (see Table 2).

Thus, testing Hypothesis 2 calls for more research on teaching methods to increase skills to react appropriately to entrepreneurial opportunities. Specifically, differences between the two groups entrepreneurs and policy-makers as well as policy-makers and business / support / service providers were found. In addition, evidence showing partial support for our third hypothesis indicates that experts see entrepreneurship as an attractive career path for both men and women (see Table 3). A significantly different rating between expert groups indicating that men and women have the same level of knowledge and skills to start a new business calls for more research on the differences in EE with a focus on gender issues (see Table 4). We believe these findings provide some empirical indication for further research in the field of EE.

Our three propositions were not fully supported, and the lack of significance in the differences is difficult to interpret without further study. Future research that more specifically examines the perceptions of different experts and potential educators in EE is needed to help bring clarity to this issue. Indeed, partially supporting results are encouraging. They suggest that EE done by different experts, with its broader conceptual and theoretical content in respect to their views and goals may be more likely to allow individuals to gain a broader perspective on entrepreneurship. We found indications of inhomogeneity in the means of experts' perception, suggesting that it is likely that moderators affect EE outcomes indirectly. This was not the case for all of our analyses. Future research should explore these differences.

Our findings help to quantify a concern that has been raised by scholars, such as Martin Cruz et al. (2009) and Volery et al. (2013), that the EE literature suffers from low a low level consensus concerning its impact on human capital. Although there is a directional indication towards increased methodological rigor, newer studies are not significantly more rigorous than older studies (Martin Cruz et al., 2009). In other words, our results suggest that different perceptions of EE by different potential moderators in this field might affect the impact. We hope that by demonstrating this influence within our comparisons we will help to encourage future researchers to conduct more rigorous studies. It might be that the broad set of knowledge, skills and competencies that one must put into practice in order to become a successful entrepreneur is influenced by the moderators' field of expertise, skills, knowledge, experience and background. It may be that EE is simply not developed enough at this point. Further studies that examine the impact of a moderator's profile and background, course design and teaching methods may help to explain these differences, and, by identifying important moderators, show that certain types of EE yield greater effects. Such

learning, if incorporated into future EE interventions may lead to improvements that will make EE more effective in general.

## 5.2. Limitations

Contributions aside, as part of the discussion, it is necessary to consider the limitations of the study that may affect the validity of the conclusions. We want to point out that the internal validity is constrained because the scope of the research design does not allow for the definite examination of the necessary conditions to prove causation. Further tests and analyses will improve this discussion. In terms of data reporting, including correlation tables and estimations of reliabilities would improve the findings. Although our tests suggested little threat, these findings should be interpreted with caution in respect to this limitation. However, our study provides a fruitful basis for future research in this field. To improve knowledge about the field of EE, forthcoming studies may compare teaching material of different experts and its impact and influence on entrepreneurial intention. Beyond that, longitudinal studies are needed to prove both causal effects and additional consequences of EE.

## 5.3. Future research

Although our findings did not show a statistically significant improvement in study rigor over time, we did find evidence of different experts' perceptions that might have an impact on EE outcomes. Nevertheless, many recent studies have not met a high standard of methodological rigor. In order to improve the literature so that future analyses can provide even more valuable findings for academics and practitioners, EE researchers must include pre- and post-interventions, and should include treatment and control groups such as Souitaris et al. (2007).

In terms of potential moderators, future research should include measures of age, education level, academic institution, academic program, course type, gender, previous entrepreneurship experience, previous employment experience, course goal, level, and content. We also recommend obtaining and reporting the main elements of the course syllabus, so that future research can control for the potential impact of course content and structure. This type of information might provide valuable insight into whether such circumstances as course content (e.g. lecture material, guest speakers, online resources, etc.), and course goals (e.g., learning concepts and theory, learning specific skills, etc.) influence the outcomes of EE interventions. Examining different methods of employing experiential exercises, such as use of online venture creation simulations versus actual venture creation projects may also expand the

*Examining Attitudes towards Entrepreneurship Education*

literature. The literature would benefit greatly from more examination of this type of course content variation. These types of such moderating elements might be fruitful for further EE research.

## Appendix

	Entrepreneur	Investor	Policy-maker	Service provider	Educator, teacher, researcher	n.a.	Amount of Experts
North America	15	3	8	15	5	26	72
EG Egypt	264	90	135	245	170	37	941
Tunisia	10	6	3	11	6	0	36
Ghana	6	1	7	10	11	2	37
Angola	12	7	0	5	6	2	32
Uganda	13	6	4	8	5	0	36
Zambia	8	0	9	9	11	0	37
Portugal	17	2	2	5	6	4	36
Ireland	15	6	1	10	8	0	40
Iceland	9	3	5	7	0	8	32
Finland	9	4	6	9	8	0	36
Latvia	15	3	2	11	4	1	36
Germany	51	23	28	28	46	11	187
Thailand	45	16	35	55	29	3	183
Vanuatu	11	1	1	14	2	7	36
Myanmar (Burma)	13	0	9	7	7	0	36
Saudi Arabia	14	6	2	6	0	6	34
Palestine	4	6	3	5	18	0	36
Israel	10	3	2	5	3	1	24
Uzbekistan	33	14	16	19	18	1	101
	<b>574</b>	<b>200</b>	<b>278</b>	<b>484</b>	<b>363</b>	<b>109</b>	<b>2008</b>

**Table 5:** Geographical distribution of experts



## References

- Acs, Zoltan and Szerb, Laszlo, "Entrepreneurship, Economic Growth and Public Policy", *Small Business Economics*, 28 (2/3), 2007, 109-122.
- Albornoz, Carlos A., "TOWARD A SET OF TRAINABLE CONTENT ON ENTREPRENEURSHIP EDUCATION: A REVIEW OF ENTREPRENEURSHIP RESEARCH FROM AN EDUCATIONAL PERSPECTIVE", *Journal of Technology Management & Innovation*, 3 (2), 2008, 86-98.
- Albornoz Pardo, Carlos, "Is Business Creation the Mean or the End of Entrepreneurship Education? A Multiple Case Study Exploring Teaching Goals in Entrepreneurship Education", *Journal of Technology Management & Innovation*, 8 (1), 2013, 1-10.
- Amoros, Jose Ernesto and Bosma, Niels, 2013, Global Entrepreneurship Monitor 2013 Global Report.
- Bae, Tae Jun, Qian, Shanshan, Miao, Chao and Fiet, James O., "The Relationship Between Entrepreneurship Education and Entrepreneurial Intentions: A Meta-Analytic Review", *Entrepreneurship: Theory & Practice*, 38 (2), 2014, 217-254.
- Boyles, Trish, "21st Century Knowledge, Skills, And Abilities And Entrepreneurial Competencies: A Model For Undergraduate Entrepreneurship Education", *Journal of Entrepreneurship Education*, 15 2012, 41-55.
- Ceyhan, Elvan and Goad, Carla L., "A Comparison of Analysis of Covariate-Adjusted Residuals and Analysis of Covariance", *Communications in Statistics: Simulation & Computation*, 38 (10), 2009, 2019-2038.
- Chen, C., Green, R. and Crick, A., "The self-efficacy expectations and occupational preferences of females and males", *Journal of Business Venturing*, 13 (4), 1998, 295-316.
- Chowdhury, S., "Demographic diversity for building and effective entrepreneurial team: is it important?", *Journal of Business Venturing*, 6 (20), 2005, 727-746.
- EC, Entrepreneurship 2020 Action Plan - Reigniting the entrepreneurial spirit in Europe, European Commission, Bruxelles, 2013a.
- EC, European Commission: Entrepreneurship Education: A Guide for Educators, Entrepreneurship and Social Economy Unit, Bruxelles, 2013b.

- Fayolle, Alain and Gailly, Benoit, "From craft to science: Teaching models and learning processes in entrepreneurship education", *Journal of European Industrial Training*, 32 (7), 2008, 569-593.
- Fayolle, Alain, Gailly, Benoît and Lassas-Clerc, Narjisse, "Assessing the impact of entrepreneurship education programmes: a new methodology", *Journal of European Industrial Training*, 30 (8/9), 2006, 701-720.
- Fretschner, Michael and Weber, Susanne, "Measuring and Understanding the Effects of Entrepreneurial Awareness Education", *Journal of Small Business Management*, 51 (3), 2013, 410-428.
- Gendron, George, 2004, Practitioners' Perspectives on Entrepreneurship Education: An Interview With Steve Case, Matt Goldman, Tom Golisano, Geraldine Laybourne, Jeff Taylor, and Alan Webber. Academy of Management, pp. 302-314.
- Gorman, G. and Hanlon, D., "Some Research Perspectives on Entrepreneurship Education, Enterprise Education, and Education for Small Business Management: A Ten-Year Literature Review", *International Small Business Journal*, 15 (3), 1997a, 56-78.
- Gorman, Gary and Hanlon, Dennis, "Some research perspectives on entrepreneurship education", *International Small Business Journal*, 15 (3), 1997b, 56.
- Hansen, J., Dietz, G., Marino, L., Kreiser, P. and Weaver, M.K., "Measuring Cross-National Invariance of the Entrepreneurial Orientation Scale", *Frontiers of Entrepreneurship Research*, 29 (22), 2009.
- Hao, Zhao, Seibert, Scott E. and Hills, Gerald E., "The Mediating Role of Self-Efficacy in the Development of Entrepreneurial Intentions", *Journal of Applied Psychology*, 90 (6), 2005, 1265-1272.
- Heinonen, Jarna and Poikkijoki, Sari-Anne, "An entrepreneurial-directed approach to entrepreneurship education: mission impossible?", *Journal of Management Development*, 25 (1), 2006, 80-94.
- Johnson, Debra, Craig, Justin B. L. and Hildebrand, Ryan, "Entrepreneurship education: towards a discipline-based framework", *Journal of Management Development*, 25 (1), 2006, 40-52.
- Katz, J.A., 2003a, Core publications in entrepreneurship and related fields: a guide to getting published (Online).
- Katz, Jerome A., "The chronology and intellectual trajectory of American entrepreneurship education: 1876–1999", *Journal of Business Venturing*, 18 (2), 2003b, 283.
- Katz, Jerome A., "Fully Mature but Not Fully Legitimate: A Different Perspective on the State of Entrepreneurship Education", *Journal of Small Business Management*, 46 (4), 2008, 550-566.

- Kourilsky, Marilyn L. and Walstad, William B., "Entrepreneurship and female youth: Knowledge, attitudes, gender differences, and educational", *Journal of Business Venturing*, 13 (1), 1998, 77.
- Kozlinska, Inna, "Contemporary Approaches To Entrepreneurship Education", *Journal of Business Management*, (4), 2011, 205-220.
- Krueger, N., "What lies beneath? The experiential essence of entrepreneurial thinking", *Entrepreneurship Theory and Practice*, 31 2007, 123-138.
- Krueger, Norris, "Neuroentrepreneurship: what can entrepreneurship educators (& practitioners?) learn from neuroscience?", *NeuroPsychoEconomics Conference Proceedings*, 2011, 50-50.
- Kuratko, D.F., Entrepreneurship education: Emerging trends and challenges for the 21st century, USASBE, Madison, WI, 2003.
- Kuratko, Donald F., "The Emergence of Entrepreneurship Education: Development, Trends, and Challenges", *Entrepreneurship: Theory & Practice*, 29 (5), 2005, 577-597.
- Lautenschläger, Arndt and Haase, Heiko, "The Myth Of Entrepreneurship Education: Seven Arguments Against Teaching Business Creation At Universities", *Journal of Entrepreneurship Education*, 14 2011, 147-161.
- Lorz, Michael, Mueller, Susan and Volery, Thierry, "Entrepreneurship Education: A Systematic Review Of The Methods In Impact Studies", *Journal of Enterprising Culture*, 21 (2), 2013, 123-151.
- Lourenço, F., Jones, O. and Jayawarna, D., "Promoting sustainable development: The role of entrepreneurship education", *International Small Business Journal*, 31 (8), 2013, 841-865.
- Martin, Bruce C., McNally, Jeffrey J. and Kay, Michael J., "Examining the formation of human capital in entrepreneurship: A meta-analysis of entrepreneurship education outcomes", *Journal of Business Venturing*, 28 (2), 2013, 211-224.
- Martin Cruz, Natalia, Rodriguez Escudero, Ana Isabel, Hernangomez Barahona, Juan and Saboia Leitao, Fernando, "The effect of entrepreneurship education programmes on satisfaction with innovation behaviour and performance", *Journal of European Industrial Training*, 33 (3), 2009, 198-214.
- Miller, Tqyah L., Wesley, Curtis L. and Williams, Demose E., "Educating the Minds of Caring Hearts: Comparing the Views of Practitioners and Educators on the Importance of Social Entrepreneurship Competencies", *Academy of Management Learning & Education*, 11 (3), 2012, 349-370.
- Muofhe, Nnditsheni J. and du Toit, Willem F., "Entrepreneurial education's and entrepreneurial role models' influence on career

- choice", *South African Journal of Human Resource Management*, 9 (1), 2011, 243-257.
- Neck, Heidi M. and Greene, Patricia G., "Entrepreneurship Education: Known Worlds and New Frontiers", *Journal of Small Business Management*, 49 (1), 2011, 55-70.
- Oosterbeek, Hessel, van Praag, Mirjam and Ijsselstein, Auke, "The impact of entrepreneurship education on entrepreneurship skills and motivation", *European Economic Review*, 54 (3), 2010, 442-454.
- Parker, Lois P., "Entrepreneurship Education as a Vehicle for Career Awareness", *Journal of Career Education*, 8 (2), 1981, 86-92.
- Peterman, Nicole E. and Kennedy, Jessica, "Enterprise Education: Influencing Students' Perceptions of Entrepreneurship", *Entrepreneurship: Theory & Practice*, 28 (2), 2003, 129-144.
- Pittaway, L. and Cope, J., "Entrepreneurship education: a systematic review of the evidence", *International Small Business Journal*, 25 (5), 2007, 479-510.
- Rasmussen, Einar, "Book Review: Entrepreneurship education", *International Small Business Journal*, 29 (6), 2011, 731-733.
- Rideout, Elaine C. and Gray, Denis O., "Does Entrepreneurship Education Really Work? A Review and Methodological Critique of the Empirical Literature on the Effects of University-Based Entrepreneurship Education", *Journal of Small Business Management*, 51 (3), 2013, 329-351.
- Sánchez, José C., "The Impact of an Entrepreneurship Education Program on Entrepreneurial Competencies and Intention The Impact of an Entrepreneurship Education Program on Entrepreneurial Competencies and Intention", *Journal of Small Business Management*, 51 (3), 2013, 447-465.
- Scherer, R., Adams, J. and Wiebe, F. , "Developing entrepreneurial behaviors: A social learning theory perspective", *Journal of Organizational Change Management*, 2 (3), 1989, 16-28.
- Schumpeter, J.A., *The theory of economic development*, Harvard University Press, Cambridge, 1934.
- Shane, S. and Venkataraman, S., "The promise of entrepreneurship as a field of research", *Academy of Management Review*, 25 (1), 2000, 217-226.
- Siegel, S. and Castellan, N. J., Jr., *Nonparametric Statistics for the Behavioral Sciences*, McGraw-Hill, New York, 1988.
- Souitaris, Vangelis, Zerbinati, Stefania and Al-Laham, Andreas, "Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources", *Journal of Business Venturing*, 22 (4), 2007, 566-591.

*Examining Attitudes towards Entrepreneurship Education*

- Sternberg, Rolf and Wennekers, Sander, "Determinants and Effects of New Business Creation Using Global Entrepreneurship Monitor Data", *Small Business Economics*, 24 (3), 2005, 193-203.
- Van Stel, André, Carree, Martin and Thurik, Roy, "The Effect of Entrepreneurial Activity on National Economic Growth", *Small Business Economics*, 24 (3), 2005, 311-321.
- Vinkenburg, Claartje J., van Engen, Marloes L., Eagly, Alice H. and Johannesen-Schmidt, Mary C., "An exploration of stereotypical beliefs about leadership styles: Is transformational leadership a route to women's promotion?", *Leadership Quarterly*, 22 (1), 2011, 10-21.
- Volery, Thierry, Müller, Susan, Oser, Fritz, Naepflin, Catherine and Rey, Nuria, "The Impact of Entrepreneurship Education on Human Capital at Upper-Secondary Level", *Journal of Small Business Management*, 51 (3), 2013, 429-446.
- von Graevenitz, Georg, Harhoff, Dietmar and Weber, Richard, "The effects of entrepreneurship education", *Journal of Economic Behavior & Organization*, 76 (1), 2010, 90-112.
- Wilson, Fiona, Kickul, Jill and Marlino, Deborah, "Gender, Entrepreneurial Self-Efficacy, and Entrepreneurial Career Intentions: Implications for Entrepreneurship Education", *Entrepreneurship: Theory & Practice*, 31 (3), 2007, 387-406.
- Zahra, S.A., "Organizational learning and entrepreneurship in family firms: exploring the moderating effect of ownership and cohesion", *Small Business Economics*, 38 (1), 2012, 51-65.